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ABSTRACT

This study examined the loss of proficiency in English as a Second Language (ESL) by Japanese children returning to Japan after a period of time in the United States. Three children who lived in the United States with their families for between 4 and 7 years were interviewed on a monthly basis after their return to Japan. The interviewer engaged the children in various activities in English, and administered English proficiency tests to the children at periodic intervals. The children showed little change in their English abilities during the first 5 to 6 months, but thereafter began to resist speaking English on some occasions, and suffered some loss of fluency, lexicon, and morphology. The specific effects on each child are discussed in detail. (MDM)

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Longitudinal Second Language Attrition: Case Studies of Japanese Returnees

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1. Introduction

More than a decade has passed since a systematic research for language loss was called for at the conference convened by Richard Lambert at the University of Pennsylvania. With the recognition of language attrition as a field of research, and with growing popularity and interest, fresh data collected solely for the purpose of language attrition study have been steadily accumulating. Also, since the conference, the interest has spread geographically, mainly to Europe, and the field has been more clearly defined, categorized and specialized.

Van Els (1986) offers a typology of non-pathological language attrition according to what is lost, either the first language or the second language, and the environment in which it is lost, either in an L1 environment or L2 environment, thus coming up with four types of language attrition. (cf. Table 1)

Type 1: Loss of L1 in an L1 environment - e.g. L1 loss by aging people

Type 2: Loss of L1 in an L2 environment - e.g. loss of native languages by immigrants

Type 3: Loss of L2 in an L1 environment - e.g. foreign language loss (classroom situation), second language loss by young children

Note that within this typology, second language is not distinguished from foreign language.

Type 4: Loss of L2 in an L2 environment - e.g. L2 loss by aging immigrants

This study falls within Type 3, that is, loss of L2, namely, English, in an L1 environment, namely Japan, by three young children after a prolonged stay in the United States. As the title suggests, the study is longitudinal. Moreover, this study is conducted from a psycholinguistic (rather than sociolinguistic) point of view. That is, I try to approach the issue of language attrition as one of the phenomena that would provide an insight into how the human mind deals with language.

One of the reasons for my launching this project two years ago was to answer the need for long term longitudinal attrition studies within individuals as recognized by Weltens (1987) and many others. This was, and still is true particularly for second language attrition. Also, with the prominent number of returnees in recent Japan, parental anecdotes of how "quickly" their children forgot their second language were abundant, but documentation of the process and the speed of attrition was nonexistent. Thirdly, as mentioned before, a variety of language attrition data had started to come in. It was felt that we were gradually approaching a stage where cross-linguistic comparisons, comparisons between L1 and L2 attrition, and comparisons between language attrition and language acquisition were all possible and meaningful.

One of the main objectives of my talk today is to provide an overall description of the progression of attrition within the first 16 to 19 months by looking into the areas of lexicon, morphology, and syntax. I will look into whether these

subsystems may be differentially affected. Code switching and non-fluency which characterize the attrition process at this stage, and individual differences will also be discussed. Finally, I will compare my findings with those from other studies of second language attrition, first language attrition and second language acquisition.

2. Subjects

The subjects are two male and one female Japanese children, whom I'll call Ken, Eugene and Lily. For today's talk, I will focus on the data provided by Ken and refer to two others to account for individual differences.

Ken comes from an upper-middle class family, with his parents being well-educated and proficient in English. He left Japan when his dad was transferred to San Jose, California, at the age of 1;3 and returned home when he was 8;0. During his seven years of stay in the San Jose area, he went through a local preschool, kindergarten, and elementary school up to 2nd grade. At home, only Japanese was spoken, but according to his mother, English was more dominant by the final year. His report card for the 2nd grade shows 'outstanding' achievements in reading, spelling and language arts. His playmates were English speaking children in the neighborhood. On returning to Japan, he entered a local public school in Tokyo. Naturally, English input for him became very limited. The only exception was an individual computer lesson that he received from an English speaking teacher

once a week, one hour per session. This started three months after his return and lasted for nine months. According to his mother, he has adjusted well to the Japanese life, and is doing well in school, both academically and socially. He is a very mature, bright and cooperative child.

Eugene and Lily are siblings. Eugene was 5;8 and Lily 2;8 when they moved to Hartford, Connecticut with their family. They stayed there for four years and four months. They went through the local schools in the community, and Eugene finished 4th grade, while Lily finished 1st. In their household, they also kept the policy of speaking Japanese only. According to his mother, Eugene was functioning in English well by his third year in the States. Compared to Eugene, Lily's English acquisition was slower, but by the third year, she was also functioning as a regular kindergartner at school and in the neighborhood. Eugene was 10;0 and Lily 7;0 when they returned to Japan. They were put in a local public school in Tokyo, in which, like Ken, English input became very limited. The only occasion that they were exposed to semi-structured English was a class the school offered for the returnees one hour a week when the school was in session. However, they sometimes skipped this lesson, and Eugene quit after nine months. Eugene is an active, outgoing, and sociable child. Lily is a bit shy and cautious, but extremely mature for her age.

For all three children, there is a strong pressure to conform to the Japanese society, and as young as they are, they

seem to have made a conscious effort to become an average Japanese child. To me they all have succeeded remarkably.

3. Data Collection

Data collection began two months after return for Ken, and one month after return for Eugene and Lily. It is still continuing, but today's talk is based on the data collected up until 19 months for Ken, and 16 months for Eugene and Lily. The data from the subjects were gathered monthly, with a few exceptions, by my visiting the subjects' homes. Each session lasted for about an hour per subject, which was video- and audio-taped. The taped-materials were then transcribed. In a typical session, a game was played in the beginning mainly as a warm up and to establish rapport in English. This was usually followed by free conversation to record spontaneous speech. Elicited speech was also collected at points. As formal measures, the Peabody Picture Vocabulary Test (PPVT) and the Bilingual Syntax Measure (BSM) were used in the beginning to formally assess their English proficiency, and to determine the baseline for receptive lexicon and morphology, respectively. They were used three more times to examine the progression of attrition. Another elicitation device was a picture story. I used A Boy, a Dog, a Frog and a Friend by Mayer, 1971. This Frog series by Mayer is now commonly used by attrition researchers. The book has a series of detailed pictures but no written text, and the subjects are free to produce a story along the pictured story-

line in any way they wish. Also, Wacky Wednesday by LeSieg, 1974, was used to systematically elicit their productive vocabulary and to examine their morpheme use. Their task was to find out and describe all the wacky things in the pictures.

4. Baseline Data

In the beginning Ken showed no signs of difficulty in expressing himself and sustaining a conversation with me for a long period of time. He would respond to my English in English right from the beginning, and would continue to do so throughout the session. His mannerisms and pronunciation were native-like. Formally, his Peabody Picture Vocabulary Test raw score was 101, an age equivalent of 9;3, when his chronological age was 8;2. He measured Level 4 - intermediate English - on BSM. The main reason he did not measure Level 5 - proficient - was that he had not acquired the conditionals.

Eugene's speech was fluent and native-like also at the start. He scored 107 on PPVT, an age equivalent of 10;2 and measured Level 4 - intermediate on BSM also due to missing the conditionals.

Lily was less verbose than the boys and did not appear to be as fluent. Nonetheless she was quite capable of expressing herself accurately. As an example, she found no trouble describing rather complex geometric shapes orally. Her PPVT score was 79, an age equivalent of 6;9. Her BSM level was 4, intermediate, also, but she scored lower than the boys.

5. Findings

5.1 Code Switching and Lexical Retrieval Difficulty

The first sign of attrition for Ken appeared as resisting to switch to English from Japanese at six months after return. Up until then, he would immediately respond to me in English, the minute I started the session. I would not call this stretch of Japanese discourse code switching in a general sense since this is much larger in scale than intra-sentential code-mixing or even inter-sentential code switching. Rather, the whole discourse of twelve minutes was my speaking in English and Ken responding in Japanese or talking to himself in Japanese. He was simply in a Japanese mode. However, once he switched to the English mode, there was no code switching or mixing.

At seven months Ken rebounded. He responded to me in English right from the beginning and there was no mixing or switching present. There was hardly any noticeable change from the sessions prior to the one at six months. At this point, the 6th month session seemed to be an exception.

However, at eight months Ken started to make inter-sentential code switching. The sixth month session, where there was a chunk of Japanese discourse, was indeed a precursor to a more regular attrition pattern.

Let's look at some instances of code switching now. All of the examples are given in your handout. In all the transcripts, a question mark denotes rising intonation and is not used as a regular punctuation mark. Pauses are denoted by the dots. One

dot is equal to approximately one second. Let's take a look at Example (1), which is from the 8th month session.

(1) [Both work on a puzzle]

M: Woo! Tough, tough, tough.

K: ee?! wakan nai yo.
'What?! I can't figure it out!'

[Both keep trying]

K: ee?! wakan nai!!! [Even more frustrated than before]
'What?! I can't figure it out!!!'

[A few moments later]

M: Where's the answer.

[K looks at the answer key]

K: aa! atte ru!
'Wow! It's correct!'

M: Is that correct?

K: [Mumbles something to himself]

M: Huh?

K: Uh, huh. Let's do this one. [K05]

As this typical example shows, Ken's code switching is concentrated on interjections and emotional utterances such as expressing frustration and excitement. There is also such example as onaka hetta na! [I'm hungry!] right in the middle of a story telling task later in the same session.

Hesitation markers are also susceptible to code switching. Let's look at Example (2).

(2) [Ken telling me a story]

K: And went to the, uh, uhm, to the king.

M: Mmmm.

K: Palace.

M: Uh, huh.

K: unto ne ... de ... eeto ne
'uh' 'well' 'uhm'

M: Yeah.

K: And he gave it to the king. [K05]

We will also see other instances of hesitation markers in the examples to follow.

We can consider interjections and emotional utterances and some hesitation markers to be manifestations of the affective aspect of code switching. On the other hand, code switching may also be seen as an accommodation strategy; that is, a manifestation of Ken's lexical retrieval difficulty. From the 8th month on there are many examples of his switching to Japanese in request for a particular English word. He had trouble even for a seemingly familiar word like English. Here are some examples:

(3) K: There was uhm .... to eigo-tte nan te iu n dakke
'Uhm, how did we say English?'

M: English.

K: English? [K05]

(4) K: sangatsu-tte May to March docchi dakke
'Which was March, May or March?'

M: March.

K: March?

M: Yeah. You're gonna move in March? [K07]

(5) K: [whispers] eeto ... nawatobi-tte nan te iu n da
'Uhm, ... how do you say jump rope?'

M: Jump rope.

K: Yeah, jump rope. [K07]

Previously, when he had encountered a difficulty in locating the exact word, he would prompt himself in English or request me in English as in Example (6) and (7).

(6) [Looking for wacky things in Wacky Wednesday]

K: Uhm .. the gold fish is in the what. Lotion? Lotion bottle? [K03]

(7) [From Wacky Wednesday, referring to a table leg]

K: Huh? Table .. what, what do you call it, legs?

M: Yeah. One of the legs. [K03]

Even though Ken started to experience trouble with immediate retrieval with some seemingly common words, these words had not been lost. Example (8) shows that with prompting and chanting, he was able to recover it without problem.

(8) M: But, uh, she'll be coming soon, you said, to make Guacamole?

K: Uhm .. in .. [whispers] gogatsu-tte nan da? eeto
'What is May? Uhm'

M: [Chants] January,

K: [Chants] February, March, April, May.

M: Right.

K: She's coming in May. [K09]

Let us now turn to how particular words get attrited progressively looking at the data taken from a more controlled environment. Table 2 lists some of the typical examples from the Wacky Wednesday data taken at six months, twelve months and

seventeen months. Unlike the spontaneous data, with this type of data we can be sure that a certain vocabulary item indeed existed initially (that is, we know that it is not a case of non-acquisition), and we can follow up on each item as the time progresses. We can see that these lexical items, pole, driver's seat, leg, sideways, smoke, and piled are being attrited and that Ken uses many strategies to compensate for it. Strategies that he uses are: switching, as in these examples, approximation <point>, avoidance, direct request in L1, paraphrase and word abandonment. All of these strategies are very much in common with those cited in L2 acquisition, L2 attrition and L1 attrition studies. Moreover, Ken frequently uses deixis when the word is not available as in Example (9). To express three houses being piled up, he said,

(9) The three houses? Uh, has to be (7 sec) doesn't belong this way. [points upward] [K12]

Let us now look at some less overt examples that might prove as further evidence for his lexical retrieval difficulty.

Lexical retrieval difficulty sometimes shows up as long pauses as in Example (10), which is from Wacky Wednesday:

(10) K: And there- ... .. there's ... ...

M: Yeah, there's

K: ...

M: You wanna talk about this one?

K: Yeah.

M: Do you know the name for it?

K: denshinbashira

'(utility) pole'

[Both laugh] [K08]

We see clearly in this example that he was looking for the word pole, which was accessible to him six months before, and that he was waiting for the word to come to him.

On the other hand, if he verbalizes his wait, it will be realized as hesitation markers. These were initially in English, but from the 8th month on, we find them to be often in Japanese as in Example (5) and (8), or both, back to back, as in Example (3).

Turning to the more grammatical aspect of code switching, we find that Ken's code switching is mostly inter-sentential. Instances of code mixing, that is intra-sentential switching, are extremely rare, and if he does, it is always free morpheme switching. No instance of bound morpheme code switching is observed in the data yet.

5.2 Fluency

In parallel with code switching and lexical retrieval difficulty, there was a change in Ken's fluency. Indications of his non-fluency are abundant in spontaneous speech starting with the 8th month, but here we will take a look at the data form the story-telling sessions to get more tangible evidence of attrition in fluency.

I picked out pauses, repetitions and self-repairs as features to be manifesting his non-fluency. Table 3 lists the

number of occurrence of pauses, repetitions and self-repairs as well as the total length of pauses in seconds. The figures are based on the data taken at 9 months, 13 months and 17 months from the story-telling task of A Boy, a Dog, a Frog and a Friend. Since the total number of words for each story-telling was of course not the same, I have converted the number of occurrence into percentage figures showing how many times or how many seconds he had paused or made repetitions per 100 words. As this table shows, except for the difference between 9 months and 13 months for the total length of pauses, we can see that Ken progressively pauses more, and pauses longer each time. He is also making more repetitions as the time progresses. For self-repair, I not only counted the instances but also looked into the nature of each repair. At nine months, all of his repairs were those where he made a repair to make the statement more specific or accurate; for instance,

(11) the turtle was .. the boy thought the turtle was dead.
[K06]

On the other hand, at 13 months and 17 months his repairs were concentrated on those where he made a wrong choice of word as in example (12),

(12) his right hand, right, right foot [K09]

or where he made a change in the sentence structure as in example (13).

(13) the boy . was trying, when the boy . was trying to . put the fishing pole, [K09]

Also, his repair was sometimes unsuccessful as in (14).

(14) and the dog .. were, and the tur- and s- the thing that (he) the thing ... the thing .. that pulled (he) the dog's tail and the dog .. got in-to the water, [K09]

In sum, we can see that Ken's fluency as defined by pauses, repetitions and self-repairs is progressively deteriorating.

5.3 Morphology

Compared to the attrition of productive lexicon and fluency, attrition of morphology is less evident. The grammatical morphemes that I looked at were: short plural, long plural, third person singular, progressive, auxiliary (both singular and plural), copula (both singular and plural), possessive, regular past, irregular past and articles (both definite and indefinite). The BSM data which were elicited three times, at two months, nine months and sixteen months, show that all of these morphemes were correctly supplied for each obligatory occasion except for one time when he missed the long plural for nose at sixteen months.

The transcripts from the story-telling task, however, revealed that Ken's use of irregular past morpheme had started to show signs of attrition. (cf. Table 4) At 13 months, irregular past was correctly supplied 100 percent of the time. (16 out of 16 obligatory occasions) However, at 19 months, it dropped to 69 percent. (18 out of 26 occasions) There were three irregular verbs that were correctly used at 13 months but incorrectly used at 19 months: make, take and bite. For these verbs we can be certain that it is a case of attrition and not a case of non-

acquisition. At 19 months, make occurred twice. For both times the root form was used. Take occurred six times altogether. Of those six times, irregular past was supplied four times, while the root form was used for the other two occasions. Bite occurred twice. For one occasion, the regular past morpheme was supplied and for the other, the correct irregular past morpheme was supplied.

In the spontaneous data at nineteen months, we can find him repairing the use of the irregular verb come as in Example (15).

(15) There's two boys _ come, came from America or something? [K13]

We can reasonably state that at this stage, the supply of the irregular past morpheme is becoming rather unstable.

Three morphemes that seem to be next in line for attrition are long plurals, short plurals and regular past. However, we will have to wait for more data to come in to be able to report tangible evidence.

4.4 Syntax

In the area of syntax, there is even less evidence to claim that attrition took place. Word order and other frequently studied structures in acquisition research such as negatives and interrogatives were all unaffected.

There is slight evidence, however, that the use of passives is diminishing; the active is used instead when the passive is pragmatically more appropriate. For example, from the BSM data: when asked What happened to the King's food?, at the second

month session, he replied, It got eaten .. by his dog. On the other hand, his response at 9 months was in the active: Uhm the dog ate it, and at 16 months also: The dog ate his food. The same tendency was shown in the story-telling data.

Another slight indication is found in the relative clause structure. We can see a few instances of missing relative pronouns starting at around 13 months. (15) and (16) are such examples.

(15) There's two boys _ come, came from America or something? [K13]

(16) There was a boy _ had a dog and a frog pet. [K09]

These sparing instances may indeed be a precursor to real attrition. Future data might prove this point.

5.5 Receptive Lexicon

A very clear case of non-attrition is the receptive lexicon. Ken's receptive skill was virtually unaffected at as late as 17 months. As mentioned before, Ken's raw score of Peabody Picture Vocabulary Test was 101 at the start (i.e., 2 months after return). At 12 months he scored 101 again, and at 17 months he scored 100. In light of the definite lexical retrieval difficulty Ken is undergoing, we clearly see here the differential attrition of productive vs receptive skills in the lexicon.

5.6 Individual Differences

So far I have focused on the attrition process based on

Ken's data. Let us now turn briefly to Eugene and Lily. Their overall process showed much the same pattern. Productive lexicon, morphology, syntax and receptive lexicon were differentially affected in that order. Lexical retrieval difficulty and its consequences for their fluency were similar for both. Eugene's code switching pattern and the timing were similar to those of Ken, perhaps Eugene's progression being a bit swifter and condensed. His attrition of morphology and syntax are even less evident than Ken's.

The biggest individual difference can be found in Lily's data with respect to code switching. Ken and Eugene used the strategy of code switching to compensate for their attrited productive vocabulary. On the other hand, Lily did not revert to L1; instead she had a strategy of waiting. In other words, we would find very long pauses in her data just around the same time when we would find instances of code switching in the boys data. (17) is an example from the spontaneous speech data showing Lily's long pause at six months.

(17) M: What do you do? If I, you and I are going to play this game.

L: You just (11sec)

M: Yeah.

L: .. Like .. I was it and I tag you ... then some-somebody uhm .. tags you then you're free. [A04]

Other data from Wacky Wednesday also show a number of instances where she becomes silent because she cannot locate the exact word. On the other hand, in her data from as late as 16

months no instances of code switching could be found. She never reverts to using L1 unless I directly ask her to switch to Japanese.

Moreover, there is a difference in the manifestations of non-fluency. Naturally, Lily's non-fluency manifests most as increase in pauses. On the other hand, Eugene's non-fluency becomes conspicuous in terms of repetitions. Here is a typical example of Eugene's repetition from the spontaneous speech data.

(18) E: [First part omitted]
You can't go to the uhm, you can't go to the uh, you can't go to the, let's say there's like uhm, a problem, but you can't go to the problem first, because you have to, there's like a story and you have to read a long story,

M: Mm, hum.

E: and then you have to, uhm, answer

M: Yeah, the questions? [A04]

The difference in the use of accommodation strategies and the different appearance in fluency are likely to have come from their difference in personal style. As mentioned before, Lily is a very cautious child. She aims at perfect utterance every time, no matter how long it takes, and there is a hesitation on her part to ask for assistance and a strong inhibition against using L1. In speech performance, this translates to her being a "pauser" and a "non-code-switcher." On the other hand, Eugene will speak out whatever comes to his mind first, however imperfect it may be. This makes him a "repeater," and since there is no strong inhibition on his part to use L1, he code-switches.

In sum, the overall progression of attrition for the three subjects are very much alike. The surface realization of their attrition, however, are sometimes different reflecting their personal style.

6. Discussion

As a last point, let me discuss the findings by comparing them with other studies of L2 attrition and L1 attrition as well as L2 acquisition.

First, the absolute speed of attrition. Kuhberg, 1992, in his longitudinal study of L2 attrition, where L1 being Turkish and L2 being German, reports no substantial change in any areas for five months. Kaufman and Aronoff's study (1991) is a longitudinal L1 attrition study, where L1 is Hebrew and L2 is English. They report the first sign of attrition to be at seven months. My subjects also showed not much change for five to seven months. The onset of attrition, therefore, is assumed to be quite similar in L2 attrition as well as in L1 attrition, being at around six months after taken away from the dominant language environment. On the other hand, the progression of attrition was more rapid for the subjects in Kuhberg's study than for mine. By the 15th month, one of Kuhberg's subjects became ashamed of her L2, which lead him to terminate the study. Kaufman and Aronoff's subject's progress was also swifter. They report that by the 12th month, the subjects' L1 verbal system started to disintegrate with increasing unwillingness to speak in

L1. My subjects, on the other hand, at 16 to 19 months, are still speaking spontaneously and willingly with morphology being relatively unaffected despite lexical retrieval difficulty and being less fluent.

From the grammatical view-point of code switching, Kuhberg observes three stages of attrition process:

Stage 1: no code switching

Stage 2: predominantly free morpheme code switching

Stage 3: predominantly bound morpheme code switching

According to this stage-wise classification, my subjects are still at Stage 2 even at as late as 16 to 19 months. Chronological age and initial proficiency level may be two good candidates to account for the difference. It will be significant to focus on these factors in future research.

Let me move on to the differential progression of lexicon, morphology, and syntax. For Kaufman and Aronoff's subject, the attrition process initially affected the productive lexicon, then morphology, the same pattern as mine; while Kuhberg reports the morphemic level being affected before the lexicon. The studies concerning the attrition of school learnt L2, such as Moorcroft and Gardner, 1987, and Weltens, Van Els and Schils, 1989 report the latter pattern. These studies are not readily comparable since there are a variety of different factors involved, such as the elapsed time of non-use, age, and experimental methodology adopted (longitudinal vs cross-sectional), to name a few. Interactive effects of these factors will be a meaningful topic

for further research. Also, this strongly suggests a need to look into whether there is a difference in the attrition of foreign language (which in most cases coincides with classroom learnt language) and the attrition of second language (which in most cases coincides with naturally acquired language). This will motivate us to further subcategorize Van Els' typology, which I mentioned in the beginning.

Since my subjects did not show substantial attrition in morphology yet, I was unable to determine whether the order of attrition was the reverse of acquisition at this point. Kuhberg's longitudinal data showed evidence supporting this so-called 'regression hypothesis', and others such as Jordens, De Bot & Trapman, 1989, and Cohen, 1986 also make similar claims. The morpheme which seems to be affected first in my data was the past irregular. According to the morpheme acquisition studies, this is one of the last morphemes to be acquired. I will follow up on the rest of the morphemes in the coming data to examine whether they will be affected in the reverse order indeed.

Accommodation strategies used by my subjects were remarkably similar to the ones reported in L2 attrition research such as Olshtain, 1989 and Cohen, 1989. Turian and Altenberg, 1991, in the area of L1 attrition, also cite common strategies, which are also common to the ones observed in second language acquisition. My data add another piece of evidence to support their conclusion that "the cause of incomplete linguistic knowledge (process of acquisition versus attrition) is not a factor in

selecting the strategies that are used to cope with the deficiency." (p. 216)

7. Conclusion

I have quickly gone through how the children's L2 lexicon, morphology, and syntax were affected by attrition by looking at the longitudinal data. Because of the limitation of time, I had to leave out other interesting and important discussions such as L1 influence and input, but I hope I have provided some specific directions for future experimental studies in L2 attrition. At the same time, from a larger perspective, I hope that attrition studies would continue to be recognized as a field that would help us better understand our language faculty in line with first language and second language acquisition.

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Table 1

Language Attrition Typology

		Language	
		L1	L2
Environment	L1	Type 1	Type 3
	L2	Type 2	Type 4

Van Els, 1986

Table 2

Lexical Attrition

6 Months	12 Months	17 Months
pole	denshinbashira [switching]	stand [approximation]
driver's seat	[avoidance]	[direct request in L1]
leg	feet, foot	foot
sideways	sideway	wrong [paraphrase]
there [diexis]	kemuri, smoke [switching]	[abandonment]
piled	going up [paraphrase]	this way [diexis]

(Wacky Wednesday)

Table 3

Deterioration of Fluency

			Time		
			9 Mos	13 Mos	17 Mos
Pauses		Sec	23% (58/256)	24% (109/451)	40% (119/334)
		#	6.6% (17/256)	8.6% (39/451)	10.5% (35/334)
Repetitions		#	1.6% (4/256)	2.9% (13/451)	3.0% (10/334)
Self-Repairs	Specific	#	4	0	2
	Wrong Word	#	0	6	1
	Wrong Structure	#	0	6	5
	Total		1.6% (4/256)	2.7% (12/451)	2.4% (8/334)

Sec: total length of pauses in seconds

#: number of occurrence

Table 4

Irregular Past Morpheme Attrition

13 Months	19 Months
100 % (16/16)	69% (18/26)
made	make
took	take took
bit	bited bit

(A Boy, a Dog, a Frog, and a Friend)